

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 22, 1998

Ronald Bosshardt Redmond Minerals, Inc. 6005 North 100 West Redmond, Utah 84652

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, Redmond

Minerals, Inc., South RCR Salt Mine, M/039/002, Sevier County, Utah

Dear Mr. Bosshardt:

The Division has completed its review of your draft Notice of Intention to Commence Large Mining Operations for the South RCR Salt mine, located in Sevier County, Utah. Your latest permit application was received September 15, 1998. After reviewing the information, the Division has the following technical comments which will need to be addressed before tentative approval may be granted. Our comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion.

We will suspend further review of the South RCR Salt Mine permit application until your response to this letter is received. If you have any questions in this regard please contact me, Tony Gallegos, Lynn Kunzler, or Tom Munson of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg

Permit Supervisor

Minerals Regulatory Program

jb

Attachment: Review

cc: Arjun Ram, Consultant

REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Redmond Minerals, Incorporated South RCR Salt Mine M/039/002

R647-4-105 - Maps, Drawings & Photographs

105.2 Surface facilities map

"Mine Features Map"

Please slightly darken the topographic contours on this map, if possible. Some of the colors used to identify different feature types are difficult to distinguish. Please add cross hatching to similar color shades to make features easier to distinguish. Please include an acreage figure in the map key for each feature category. Please include section lines on this map. Please label the structure located at the north end of property near the overburden piles. Feature categories in the map key do not exactly match those used in the text of the plan. For example, this map has the categories of mine dump, and new mine, while page seven of the LMO has no mine dump category, or new mine category. Please modify the categories to agree with each other or provide a note explaining what is included in the categories which do not match. Due to the large number of features under the same category we suggest labeling these multiple features with another identification to make future reference easier. Some examples of a labeling system would be to label clay mine areas as CM-1, CM-2, etc; clay waste dump areas as CW-1, CW-2, etc; salt mine areas as SM-1, SM-2, etc. This is merely an example of a labeling system, and Redmond may use any system they desire. (AAG)

"Treatments Map"

Please slightly darken the topographic contours on this map, if possible. As suggested for the Mine Features Map, please add cross hatching to similar color shades to make features easier to distinguish. Please use a different color for roads which are included in a variance request. The current color makes it difficult to distinguish between a border around an area included in a variance request and a road included in a variance request which goes around an area. Please provide acreages for the salt mine and processing areas cross hatched on this map. Please provide an acreage figure for the three salt waste areas north of the salt mill which are cross hatched to indicate reclamation. (AAG)

105.3 Drawings or Cross Sections (slopes, roads, pads, etc.)

variance request (revegetation and highwa through the long and short axis of the pit.

Please provide cross section configuration. Please provide cross sectional drawings for the overburden piles/dumps and waste piles/dumps which are included in variance requests. Please provide two cross sections through each pit included in a variance request (revegetation and highwall). Pit cross sections should run perpendicular to each other

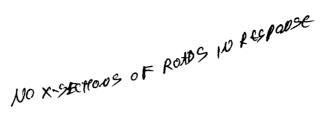
Please provide cross sectional drawings of waste dumps to be reclaimed which show the dump configuration during operations and after reclamation. Please include a written description of the reclaimed slope configuration for these dumps in the appropriate section of the text.

MUNE DUMPS MD-1, MD-2, MD-3: GRANDFATHERED OVERBURDEN PILES: OB-1, OB-2: VARIANCE FOR MORTH END-OLD SHET MINE

, no cross sections IN RESPONSE

NO X-SECTIONS W ARSPORSE & MIGHT HAVE DESCRIPTIONS IN TEXT?

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Please provide typical cross sectional drawings of the dirt roads which are proposed to remain for post mining use. Provide one cross section for a road on gentle terrain and one cross section for a road on steep terrain.

Please show the location of all cross sections on the surface facilities (Mine Features) map or provide another index map showing these locations.. (AAG)

LOCATIONS OF THE ZX-SCHONS AT SM-1, SM-2 SHOW

R647-4-106 - Operation Plan

106.1 Minerals mined

Please describe the specific types of clay and salt mined. If there are no specific types or classifications please describe the typical end uses for these materials. This information will assist the Division in tracking types of commodities mined in Utah. (AAG)

106.2 Type of operations conducted, mining method, processing etc.

Please describe the method and typical equipment used to excavate clay materials. Please describe the method and typical equipment used to excavate salt from the underground workings. If explosive agents are used please describe the types of explosives used. Please describe the operations which are proposed or which have been conducted in the "exploration area." (AAG) \checkmark

106.3 Estimated acreages disturbed, reclaimed, annually.

Acreages totaled from the Treatments Map give a total of 75.3 acres. Page 27 of the LMO states 75.9 acres will be reclaimed. Page seven of the LMO gives a total acreage of 68.62 acres. Page 11 of the LMO states the total disturbed area is not expected to exceed 74.9 acres. Please explain these conflicting acreages. Page 11 of the LMO states new disturbance will typically not exceed five acres per year. Given the Division's policy of waiting up to 3 years for revegetation success before releasing an area should the total disturbed acreage be increased by this five acres? Acreages shown on the Treatments Map differ from acreages on the Mine Features Map. These differences may be due to regrading and revegetating the "affected area." Please provide an explanation for these differing acreages. (AAG) $\sqrt{77.}/5$ —for $\sqrt{5}$

106.5 Description of existing soil types, location, amount

Please provide an estimated volume of the soil materials available for reclamation in each of the overburden piles. (LK)

The NOI indicates that no soil analysis was performed because the soil will be fertilized at the time of reclamation. To properly identify the type and rates of fertilizer and/or amendment to be used for reclamation, please provide an analysis of the soils that will be used for reclamation (waste dumps, overburden piles, clay hills, etc.). The analysis needs to include the following parameters:

SOIL NEEDY

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> Ph Electrical Conductivity % Organic Matter Total Nitrogen Phosphorus (as P₂O₅)

Cation Exchange Capacity Sodium Absorption Ratio Nitrate Nitrogen Potassium (as K₂O)

(LK)

106.7 Existing vegetation - species and amount

A vegetation survey was conducted in July of 1998. Results of this survey showed about 5% ground cover by desirable and/or native species and an additional 30-35% ground cover by weedy species (halogeton, kochia and cheatgrass) for a maximum ground cover of 40%. The survey concluded that because of the extent of the weedy infestation, pre-mine vegetation cover could not be accurately determined. However, the NOI has proposed a target reclamation cover standard of 30%, which would be sufficient to control erosion and meet post mining land use needs. The NOI also indicated that Redmond Minerals, Inc. will continue to work with the Division in establishing appropriate reclamation standards for the site as concurrent reclamation proceeds. This approach is acceptable to the Division. (LK)

106.9 Location & size of ore, waste, tailings, ponds

Please describe the origins and purposes of the various brine ponds. (AAG) ν

R647-4-107 - Operation Practices

107.1 Public safety & welfare

Page 16 of the LMO describes fencing in place along the east side of the property. Is road access into the mine site controlled by locked gates or security personnel during active operations? If not, please explain why these measures are unnecessary for public safety during active operations. $(AAG) \sim$

107.1.11 Closing or guarding shafts & tunnels

Are underground openings gated and locked between work shifts or during other periods of inactivity? If not, please explain why these measures are unnecessary for public safety during active operations. (AAG) \checkmark

107.1.12 Disposal of trash, scrap, debris

Is it possible for Redmond to reduce the number of scrap metal/garbage dumps and reclaim those dumps which are unnecessary? (AAG)

107.4 Deleterious material safety stored or removed

What measures are taken during active operations to prevent migration of salts from the salt waste stockpiles? If no measures are being taken, please explain why measures are unnecessary. (AAG)

MEED PO ATE

Page 4 Initial Review M/039/002 December 22, 1998 DID NOT ADDRESS OR MENTER SUBSIDENCE

R647-4-109 - Impact Assessment

109.4 Slope stability, erosion control, air quality, safety

Please describe the anticipated surface and subsurface impacts due to the underground salt mining operations. Please describe measures to mitigate these impacts or explain why mitigation is unnecessary. (AAG) \sim

R647-4-110 - Reclamation Plan

110.1 Concurrent & post mining land use

Please describe the post mine land use of the road segment which dead ends near the "new mine" area at the south end of the property. A road segment cutting an intersection corner near the south salt mine is not marked as being reclaimed or as being requested to remain for post-mining land use. Please describe the final disposition of this road segment. (AAG)

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Please provide a description of the slope configurations for reclaimed waste dumps. This description should agree with the cross sectional drawings requested under section R647-4-105.3.

Page 22 of the LMO states that efforts will be made to reclaim "some" dumps by grading, spreading additional soil and reseeding. Please specifically identify those dumps which will be regraded and reclaimed and dumps which will not be reclaimed.

Page 27 of the LMO states existing stockpiled topsoil will be mixed with fertilizer and spread where soil was stripped and the area disced & seeded. This same page states that other disturbed areas with existing topsoil will be ripped, fertilized as necessary and seeded. Please identify which areas will receive which of these reclamation treatments on the Treatments Map and by providing the respective acreages. (AAG)

110.4 Description or treatment/disposition of deleterious or acid forming material

Please describe the proposed reclamation treatments for the salt waste areas immediately north of the salt mill. (AAG)

110.5 Revegetation planting program

While the proposed revegetation planting plan is generally acceptable, a few minor changes to both the practices and the seed mix should be made to help assure reclamation success in establishing a permanent and diverse vegetation cover. First, it is requested that the surface be left in a 'rough' condition (i.e. with small depressions or pits). The use of a harrow would tend to smooth the surface. Second, reduce the seeding rate for forage kochia, yellow sweetclover and crested wheatgrass and add shadscale. The suggested revised rates are attached to this review as a recommended seedmix. (LK)

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R647-4-111 - Reclamation Practices

111.2 Reclamation of natural channels

There does not appear to be any natural channels included in the current mine site, but it does appear that there is a ephemeral channel to the North of the site. When the site is reclaimed, what will be the final direction of the overland surface water flow? The plan states that all surface drainage flows in the direction of the pits. Please provide a better explanation and map showing direction of flow in regards to overland surface flow in all areas of disturbance. (TM)

111.9 Dams & impoundments left self draining & stable

The pits will become impoundments upon closure of the mine site. Please describe why these structures would not become a public health and safety concern, or present an environmental concern (i.e., water quality contamination concerns?) upon closure of mining operations. Do these pits hold water presently and are they pumped out to allow mining to take place? Are the "pre-law" brine ponds being used and do they presently hold brine water? (TM)

R647-4-112 - Variance

A variance was requested from Rule R647-4-111.13: Revegetation, for facilities and roads that are proposed to be retained for post mining land use. Assuming that the additional clarification we have requested above regarding these items is sufficient to approve the proposed post mining land use, a variance from revegetation of these areas would not be necessary.

A variance was requested from Rule R647-4-111.13: Revegetation, for the clay pits and clay hills as shown on the Reclamation Treatments Map. At this time, it appears that the clay hills are not within the proposed area for mining. If they are not disturbed, a variance for revegetation is not needed. If they will be mined, it needs to be made clear in the plan and maps that they will be mined. From the photos of these areas provided, the Division agrees that current vegetation is sparse. A revegetation standard for these areas would be 70% of the premining vegetation cover. It can be assumed that the current clay pits may also have been sparsely vegetated prior to mining. Again, the revegetation standard would reflect a lower cover value. The vegetation report indicated that the vegetation cover on these areas was probably about 5%. At this time, the Division would prefer to see these areas seeded and work with Redmond in developing an appropriate standard that would be less than the proposed 30% revegetation standard for these areas.

Page 22 of the LMO form states the two brine ponds near the north end of the mine will be left in place and are considered "grandfathered" by Redmond. These ponds will need to be included in a variance request formatted according to this section. (AAG)

The Treatments Map shows the "Variance" border around several clay hills. These clay hills were not included as disturbed areas on the Mine Features Map. Please explain the reason for including these features as variance areas. If a variance is being requested for these features please provide a variance request for them which is formatted according to this section. (AAG)

No poplar

Page 6 Initial Review M/039/002 December 22, 1998 SPECIFIC HILLIAMS PORT LOCATIONS DOT THE SPECIFIC HILLIAMS PLANTS PERMETER SHOWN ON THE ENTRE PERMETER HIGHWALL IS THE ENTRE PERMETER PERM

Variance Request R647-4-111.7 -Highwalls

Salt Mines

The current pre-law highwalls at the North and South Salt Mines are hereby granted a variance from meeting the 45 degree highwall stabilization requirement. Please indicate the specific location of these public from these highwall hazards during active mining highwalls are not automatically included in the variance granted. Future highwall modifications will be subject to additional review by the Division. (AAG) highwalls on the Treatments Map. This variance does not relieve Redmond from the requirement of

Clay Mines

It is unclear whether Redmond is requesting a variance for all clay mine highwalls, or selected portions of clay mine highwalls. Please clarify the variance request for clay mines and indicate the specific location of these highwalls on the Treatments Map. (AAG)

R647-4-113 - Surety

The general methodology used in the reclamation surety estimate is acceptable to the Division; however, no information was provided to support the quantities for each line item. Please provide information to support the quantities used in this estimate. For example, please provide the basis for 20,000 CF of building demolition, 13,068 CY of slope regrading, 500 LF of safety berms, etc. Please explain why a line item was not included for closure of underground openings. The information requested in this review is needed before the Division can evaluate the reclamation estimate. (AAG)

R647-4-115 - Confidential Information

Page 23 of the LMO indicated confidential information was enclosed with this submission. No information was specifically labeled or identified as confidential in the information received by the Division. Please note that only information relating to the location, size, or nature of the deposit may be protected as confidential by the Division. Please clarify which information was intended as confidential & provide this confidential information in a format which allows for separate filing. (AAG)

Attachment: Seedmix

Recommended Revegetation Species List for

Redmond Minerals, Inc South RCR Salt Mine M/039/002

Common Name	Species Name	*Rate lbs/ac (PLS)
'Hycrest' crested wheatgrass	Agropyron cristatum 'hycrest'	1.0
Tall wheatgrass	Agropyron elongatum	2.0
Russian wildrye	Elymus junceus	2.0
Mountain rye	Cecale montanum	2.5
Bottlebrush squireltail	Sitanion hystrix	1.0
Yellow sweetclover	Melilotus officinalis	0.5
Shadscale	Atriplex confertifolia	2.0
Rubber rabbitbrush	Chrysothanmus nauseosus	0.5
Forage kochia	Kochia prostrata	1.0
	Total Seed	12.5 lbs/ac

^{*}Recommended Broadcast seeding rate.

Prepared by DOGM December 2, 1998 M039002.sdm